

NOTES ON SPECIES GROUPS OF SUBGENUS HOMONEURA FROM CHINA WITH DESCRIPTIONS OF TWO NEW SPECIES (DIPTERA, LAUXANIIDAE)

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Abstract The subgenus *Homoneura* Van der Wulp includes more than 500 known species in the world and 94 known species in China, of which 66 species from China are placed into 20 species groups. A key to separate these species groups is presented. Two new species, *Homoneura* (*Homoneura*) *longinotata* sp. nov. and *Homoneura* (*Homoneura*) *trunciformis* sp. nov., are described and illustrated from China. All types are deposited in the Entomological Museum of China Agricultural University (CAU).

Key words Diptera, Lauxaniidae, *Homoneura*, species group, new species, China.

The subgenus *Homoneura* Van der Wulp, 1891 belongs to the genus *Homoneura* (Diptera, Lauxaniidae, Homoneurinae), distributed worldwide except the Neotropical Region, with more than 500 known species in the world and 94 known species in China. It can be easily separated from other subgenera of the genus *Homoneura* by the following characters: Mesoscutum with anterior supraalar bristle and intraalar bristle absent. Fore tibia not compressed in male, mid tibia usually with 2–3 *pv*, *pd* absent; hind tarsomere 2 not distinctly darkened. Wing with costal setulae ending abruptly at tip of R_{4+5} , apical section of M_{1+2} not curved forward. So far, dipterists have been trying to classify them into different species groups. Miller (1977) first divided the Nearctic *Homoneura* into 9 species groups. Papp (1978) recognized 2 species groups in the Palearctic *Homoneura*, and in 2006 he also proposed 4 species groups in the Oriental *Homoneura* but he did not give elaborate explanation. Sasakawa (1992) recognized 1 species group in the Oriental *Homoneura* and Kim (1994) divided the Australian *Homoneura* into 15 species groups. 20 species groups of *Homoneura* have been recognized according to the preceding work, of which 3 species groups are known to occur in China.

In the present paper, 66 species from China are placed into 20 species groups according to the following main characters based on the preceding work and our examination: spots of frons, face, mesoscutum and abdomen; color of palpus; color, spots and number of bristles on legs especially femur and tibia; pattern of wing spots; shapes of protandrium, hypandrium and gonopod. But the placement of other 28 species is uncertain with the following reasons: 1) the type specimens of some species only have females but no males; 2) the simple original descriptions and figures of

male genitalia are not enough to decide their appropriate status before the type specimens are examined; 3) some species are very special so as to be difficult to be placed. The 20 species groups have common characters: α developed, at least as long as 1/2 length of anterior *or*; mesoscutum with 0+3 *dc*, *acr* hair-like only with a pair of *prsc* strong (except *H.* (*H.*) *ornatifrons* group with *prsc* hair-like); mid tibia with 1–3 *pv*, hind tibia with 1 preapical *ad* (except absent in *H.* (*H.*) *notostigma* group). The following 17 species groups were firstly proposed, including *H.* (*H.*) *abnormis* group, *H.* (*H.*) *bistriata* group, *H.* (*H.*) *brevis* group, *H.* (*H.*) *formosae* group, *H.* (*H.*) *heavenensis* group, *H.* (*H.*) *laticosta* group, *H.* (*H.*) *lii* group, *H.* (*H.*) *notostigma* group, *H.* (*H.*) *ornatifrons* group, *H.* (*H.*) *picta* group, *H.* (*H.*) *quiquenotata* group, *H.* (*H.*) *singularis* group, *H.* (*H.*) *striatifrons* group, *H.* (*H.*) *substigmata* group, *H.* (*H.*) *tibetensis* group; *H.* (*H.*) *trispina* group, *H.* (*H.*) *ungiculata* group. Two new species, *H.* (*H.*) *longinotata* sp. nov. and *H.* (*H.*) *trunciformis* sp. nov., are reported from China. A key to separate these species groups is presented.

Specimens examined are deposited in the Entomological Museum of China Agricultural University (CAU), Beijing. The following abbreviations for bristles are used: *ac*-acrostichal, *ad*-anterior dorsal, *dc*-dorsocentral, *oc*-ocellar, *or*-fronto-orbital, *pd*-posterior dorsal, *prx*-prescutellar, *pv*-posterior ventral.

Key to 20 species groups of the subgenus *Homoneura* from China

1. Mesoscutum and abdomen yellow with irregular small brown spots; wing mostly brown with small irregular hyaline spots *H.* (*H.*) *pida* group
Mesoscutum and abdomen without above mentioned spots; wing not as above 2
2. Mesoscutum mostly blackish brown to entirely black, with yellow brownish, bluish gray, whitish gray or grayish white pollen, sometimes

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- shining 3
Mesoscutum mostly pale yellow to yellowish brown, with grayish white pollen or shining 6
3. Basal part of wing blackish brown; surstylus consisting of anterior and posterior processes *H. (H.) trispina* **group**
Basal part of wing yellow; surstylus not as above 4
4. *Psc* hair like as long as *acr* or microscopic; surstylus with wide bar like apical process and truncate apically; hypandrium nearly V-shaped
..... *H. (H.) ornatifrons* **group**
Psc distinctly developed, longer than *acr*; surstylus and hypandrium not as above 5
5. Frons yellow with two narrow brown stripes along *or* rows and a narrow brown triangular median stripe; palpus pale yellow; hypandrium W-shaped *H. (H.) beckeri* **group**
Frons entirely black or yellow on ventral 1/2 without stripes; palpus brown or black; hypandrium H shaped or Y-shaped
..... *H. (H.) nigra* **group**
6. Wing with conspicuous spots on longitudinal veins and crossveins 7
Wing clear, without spots 18
7. Wing entirely brown along costal margin or with brown transverse costal margin 8
Wing mostly hyaline with discontinuously brown spots along costal margin 9
8. Palpus brown; mesoscutum with 3 brown stripes
..... *H. (H.) quinquevittata* **group**
Palpus yellow; mesoscutum without brown stripes
..... *H. (H.) laticosta* **group**
9. Wing with brown stripe or cloud on *r-m* 10
Wing without brown stripe or cloud on *r-m* 17
10. Wing with one or two brown spots between *r-m* and apical spot on R_{4+5} 11
Wing without brown spots between *r-m* and apical spot on R_{4+5} 15
11. Wing with two brown spot between *r-m* and apical spot on R_{4+5}
..... *H. (H.) singularis* **group**
Wing with one brown spots between *r-m* and apical spot on R_{4+5}
..... 12
12. Subcostal cell with a brown apical spot over R_1 13
Subcostal cell without brown apical spot, sometimes slightly dark 14
13. Mesoscutum yellowish brown; wing with larger brown clouds; a brown triangular basal spot crossing R_{2+3} , R_{4+5} and M_1 ; CuA_1 with brown stripe on basal 1/2; gonopod as long or longer than aedeagus
..... *H. (H.) striatifrons* **group**
Mesoscutum pale yellow to yellow; wing with smaller brown spots; no brown basal spots crossing R_{2+3} , R_{4+5} and M_1 ; CuA_1 not as above; gonopod shorter than aedeagus *H. (H.) bistriata* **group**
14. Wing with brown preapical spot on R_{2+3} at or slightly beyond vertical level of *dm-cu*; surstylus consisting of 1-2 apical processes; hypandrium H-shaped with a median process and hypandrial apodeme distinct; gonopod with long hairs; aedeagus acute apically
..... *H. (H.) abnormis* **group**
Wing with brown spot on R_{2+3} at extreme tip; surstylus with a subapical process; hypandrium H shaped without median process or Y-shaped; gonopod without hairs; aedeagus blunt round apically, with acute processes *H. (H.) tibetensis* **group**
15. Apical spots on R_{4+5} and M_1 close to *dm-cu* on wing; surstylus consisting of a pair of furcated apical processes *H. (H.) lii* **group**
Apical spots on R_{4+5} and M_1 at extreme tip of wing; surstylus not as above 16
16. Surstylus long and curved *H. (H.) quiquenotata* **group**
Surstylus small and acute *H. (H.) substigmata* **group**
17. Gonopod shorter than 1/2 length of aedeagus; surstylus consisting of inner and outer processes *H. (H.) henanensis* **group**
Gonopod longer than 1/2 length of aedeagus; surstylus with a preapical dorsal process *H. (H.) brevis* **group**
18. Abdominal tergite 5 with a pair of round lateral spots
..... *H. (H.) formosae* **group**

Abdomen without spots 19

19. Hind tibia with 1 preapical ad; surstylus claw like or slightly hook-like or furcated *H. (H.) unguiculata* **group**
Hind tibia without 1 preapical ad; surstylus straight or slightly curved but not as above *H. (H.) notostigmata* **group**

1 *Homoneura* (*Homoneura*) *abnormis* group

Diagnosis. Wing with apical spot on R_{4+5} and M_1 , preapical spot on R_{2+3} and median spot on R_{4+5} confluent or isolated, at or beyond vertical level of *dm-au*; brown cloud on *r-m* and *dm-au*. Subcostal cell hyaline or slightly dark. Abdomen yellow to brownish yellow, male tergites 3-6 (female 3-7) usually with black hind margin or median stripe or lateral spots. Male genitalia: protandrium semicircular and surstylus with one or two apical processes; hypandrium H-shaped with a median process and hypandrial apodeme distinct; gonopod with long hairs; aedeagus acute apically. This group is similar to the *finitima* group from the Australian Region in wing pattern. In the *finitima* group, the protandrium is circular and the aedeagus round or truncate apically. Including: *H. (H.) abnormis* Gao & Yang, 2004; *H. (H.) jiangi* Gao & Yang, 2004.

2 *Homoneura* (*Homoneura*) *beckeri* group

Diagnosis. Frons yellow with two narrow brown stripes along *or* rows and a narrow brown triangular median stripe. Palpus yellow. Wing slightly yellow, clear without spot or with a pale brown spot on *r-m* and *dm-au*. Abdomen yellow, tergites 3-5 each with a blackish brown transverse posterior band and a triangular median spot confluent with blackish brown transverse band. Male genitalia: protandrium circular, hypandrium W-shaped. Including: *H. (H.) beckeri* (Kertész, 1900); *H. (H.) bomiensis* Gao & Yang, 2003; *H. (H.) faxiventris* Malloch, 1927; *H. (H.) immaculata* (de Meijere, 1910); *H. (H.) nigrantemata* Yang, Hu & Zhu, 2002; *H. (H.) occipitalis* Malloch, 1927; *H. (H.) yunnanensis* Li & Yang, 2008.

3 *Homoneura* (*Homoneura*) *bistriata* group

Diagnosis. Frons yellow with a pair of brown stripes. Palpus yellow except black tip. Wing with two brown apical spots on R_{4+5} and M_{1+2} confluent or isolated; brown preapical spot on R_{2+3} confluent or isolated with subapical spot on R_{4+5} , brown cloud on *r-m* and a brown stripe over *dm-cu*; a brown apical spot in subcostal cell. Abdomen yellow to yellowish brown, male tergites 3-6 or 5-6 each with a brown spot. Male genitalia: hypandrium H-shaped, surstylus with a ventral process, originated from ventroapical corner of epandrium; gonopod shorter than aedeagus. Including: *H. (H.) bistriata* (Kertész, 1915); *H. (H.) conjuncta* Yang, Hu & Zhu, 2002; *H. (H.) separata* Yang, Hu & Zhu, 2002.

4 Homoneura (Homoneura) brevis group

Diagnosis. Palpus yellow. Wing with large and long brown elliptical apical spots on R_{2+3} , R_{4+5} and M_1 ; a brown spot on R_{4+5} between $r-m$ and apical spot; a stripe like spot on $dm-au$. Abdomen yellow. Male genitalia: surstylus with a preapical dorsal process; hypandrium H shaped, hypandrial apodeme indistinct; gonopod long subuliform, nearly as long as aedeagus. Including: *H. (H.) brevis* Gao & Yang 2004; *H. (H.) longispina* Gao & Yang 2004; *H. (H.) tianensis* Gao & Yang 2004.

5 Homoneura (Homoneura) formosae group

Diagnosis. Arista bare or pubescent or plumose. Palpus yellow. Wing clear, without spot. Abdominal tergite 5 with a pair of round spots. Including: *H. (H.) arostichalis* (de Meijere, 1915); *H. (H.) crassicauda* Malloch, 1927; *H. (H.) forapata* (Kertész, 1913); *H. (H.) formosae* (Kertész, 1913); *H. (H.) nudifrons* (Kertész, 1913).

6 Homoneura (Homoneura) henanensis group

Dignosis. Frons yellow without spot. Palpus yellow. Wing with brown apical spots on R_{2+3} , R_{4+5} and M_1 , and a brown spot on R_{4+5} between $r-m$ and apical spot; brown cloud on $dm-au$. Abdomen yellow. Male genitalia: surstylus consisting of two processes; hypandrium H shaped or Y-shaped; gonopod coniform or subuliform, shorter than 2/3 length of aedeagus. Including: *H. (H.) aatata* Yang, Zhu & Hu, 1999; *H. (H.) bipindalis* Yang, Hu & Zhu, 2001; *H. (H.) chinensis* Malloch, 1926; *H. (H.) curvata* Yang, Zhu & Hu, 1999; *H. (H.) arvispinosa* Yang, Hu & Zhu, 2001; *H. (H.) fujianensis* Yang, Zhu & Hu, 2003; *H. (H.) grandis* (Kertész, 1915); *H. (H.) guzhouensis* Gao & Yang, 2002; *H. (H.) henanensis* Yang, Zhu & Hu, 1999; *H. (H.) hirayamae* (Matsumura, 1916); *H. (H.) serrata* Gao & Yang, 2002; *H. (H.) tianmushana* Yang, Hu & Zhu, 2001; *H. (H.) yangi* Gao & Yang, 2005; *H. (H.) yaromi* Yang Hu & Zhu, 2001; *H. (H.) zonalis* Yang, Zhu & Hu, 1999.

7 Homoneura (Homoneura) laticosta group

Diagnosis. Frons yellow with two brown stripes or no spot. Palpus yellow to brownish yellow. Wing pale brown or deeply brown on costal margin, usually with a brown stripe-like spot over $r-m$ or $dm-cu$. Abdomen yellow or brown. Male genitalia: surstylus claviform, acute apically; hypandrium H-shaped or U-shaped; aedeagus curved backwards. Including: *H. (H.) aernyi* Shatalkin, 1993; *H. (H.) grahami* Malloch, 1929; *H. (H.) laticosta* (Thomson, 1869); *H. (H.) longa* Gao & Yang, 2002; *H. (H.) yehliuensis* Sasakawa, 2002.

8 Homoneura (Homoneura) lii group

Diagnosis. Frons wider than long, yellow with two brown stripes. Palpus yellow. Wing with a brown preapical spot on R_{2+3} confluent with a subapical spot on R_{4+5} and an isolated brown subapical spot on M_{1+2} ; brown cloud on $r-m$ and $dm-au$. Abdomen yellow, tergites 3-6 in male (3-7 in female) with black hind margin and a narrow black stripe. Male genitalia: protandrium semicircular or entirely circular; hypandrium nearly U shaped, sustylus consisting of a pair of furcated apical processes. Including: *H. (H.) lii* Gao & Yang, 2005; *H. (H.)* sp.

9 Homoneura (Homoneura) nigra group

Diagnosis. Frons blackish without spots. Antennal 1st flagellomere blackish, arista long plumose. Palpus entirely black. Leg with all tibiae yellowish brown, all femora black. Wing without spot, or only with spots on $r-m$ and $dm-au$. Abdomen black. Male genitalia: surstylus small, slightly curved; hypandrium H shaped or Y-shaped; gonopod with hairs, nearly as long as aedeagus. Including: *H. (H.) nigra* Kim, 1994^{*}; *H. (H.) discoglauca* (Walker, 1860).

10 Homoneura (Homoneura) notostigma group

Diagnosis. Frons wider than long, with two pale brown stripes. Antennal 1st flagellomere deeply dark on apical 1/2; arista plumose. Palpus yellow. Mesoscutum with a semicircular black spot on scutellar suture. Hind tibia without preapical *ad*. Wing clear without spot. Abdomen yellow to brownish yellow. Male genitalia: protandrium circular; surstylus straight or slightly curved; hypandrium H shaped. Including: *H. (H.) demajerei* Malloch, 1929^{*}; *H. (H.) notostigma* (Kertész, 1913).

11 Homoneura (Homoneura) ornatifrons group

Diagnosis. Face and Frons brownish yellow on ventral 1/2. Palpus brown. Mesoscutum with *prsc* hair-like or microscopic. Postpronotum yellow. Wing clear without spots; basal part of wing yellow. Abdomen shining black. Male genitalia: protandrium confluent with epandrium; surstylus wide bar-like, but truncate apically; hypandrium nearly V-shaped; gonopod wide, nearly triangular, truncate at tip or with acute processes. Including: *H. (H.) ornatifrons* (Kertész, 1913); *H. (H.) repanda* Sasakawa & Ikeuchi, 1982^{*}; *H. (H.) trunciformis* sp. nov.

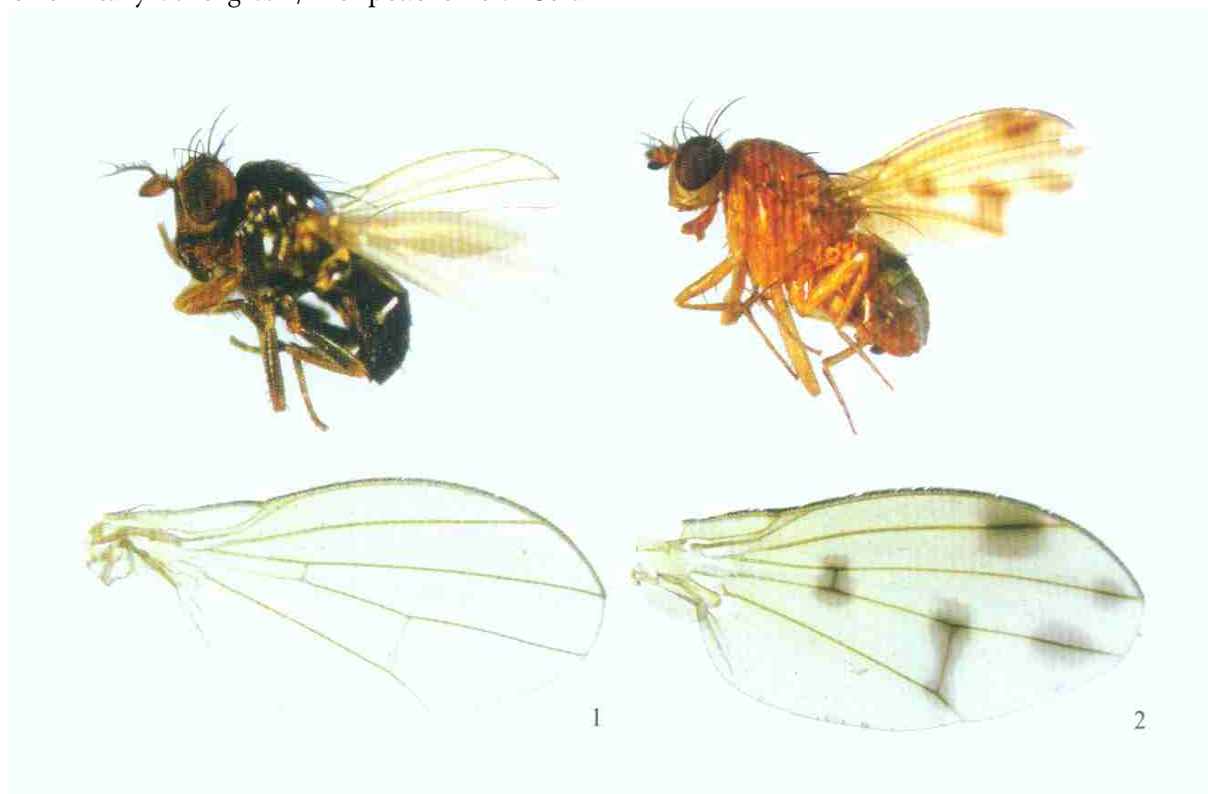
Homoneura (Homoneura) trunciformis sp. nov.
(Figs. 1, 3-6)

Description. Male. Body 2.1-2.7 mm; wing 2.2-2.6 mm. Female. Body 2.4-2.8 mm; wing 2.4-2.6

* Stands for the species no distribution in China, only comparison with the Chinese species.

mm. Head brownish black. Face brownish yellow on ventral margin, parafacial and gena brownish yellow, slightly with silvery white pollen; inner margin of parafacial brown. Frons as long as wide and parallel-sided, with a yellow to orange quadrate spot on anterior 1/2, except base of *or* rows brownish black; ocellar triangle black; α strong, longer than anterior *or*, anterior *or* nearly as long as 1/2 of posterior *or*. Gena

about 1/4 height of eye. Antenna yellow except 1st flagellomere blackish brown on apical 1/3 1/2, 1st flagellomere 2.0 times longer than high; arista plumose, black except for brownish base, with longest hairs slightly shorter than height of 1st flagellomere. Proboscis brown, with yellowish hairs and blackish hairs; palpus black with dark hairs.

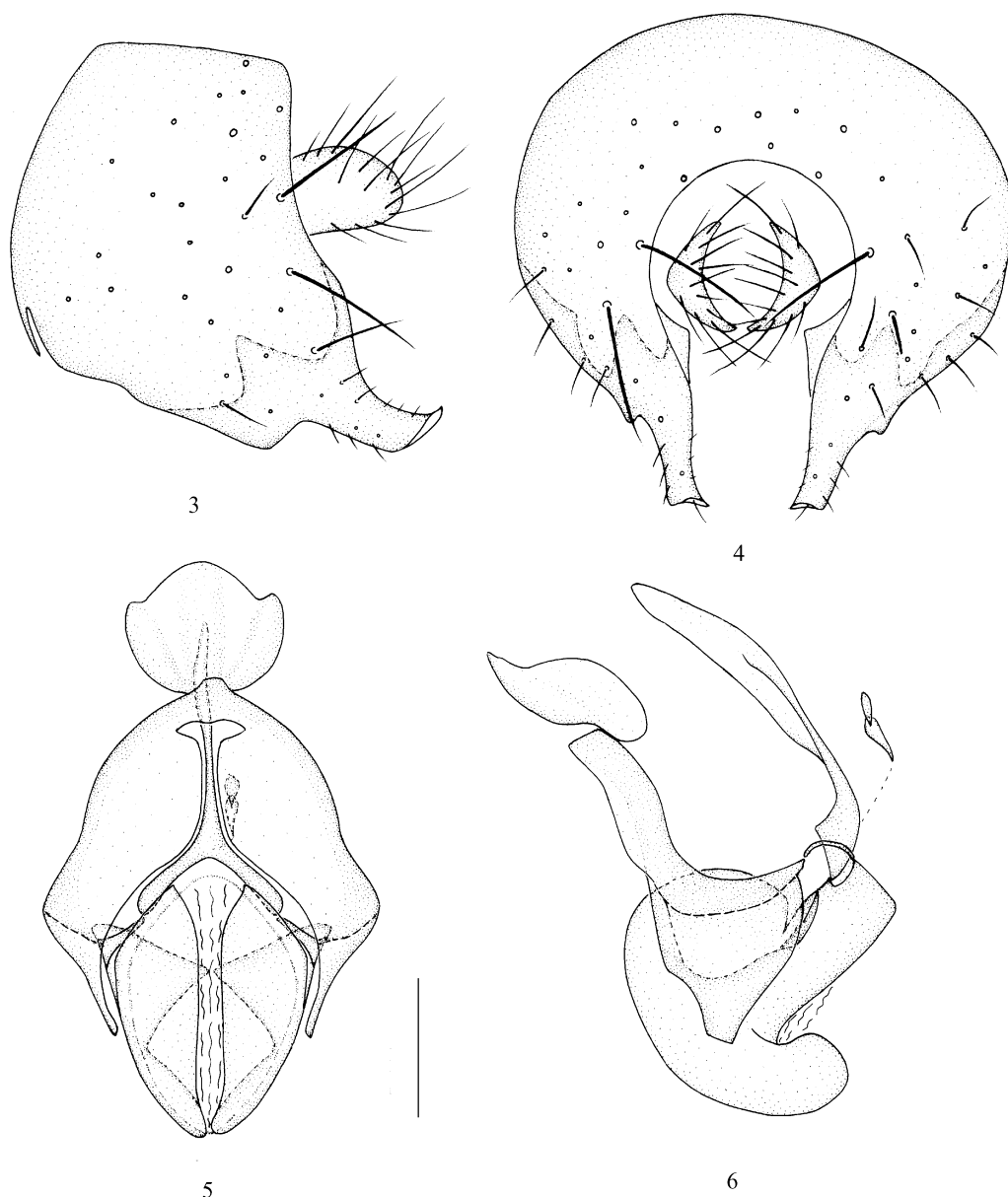


Figs 1-2. Wing. 1. *Homoneura* (*Homoneura*) *trunciformis* sp. nov. 2. *Homoneura* (*Homoneura*) *longinotata* sp. nov.

Thorax black with brownish gray pollen. Mesoscutum with 0+ 3 *dc* (anterior *dc* clearly behind transverse scutal suture), *acr* in 6 somewhat irregular rows, *prsc* hair like, as long as *acr*. Humeral callus yellow. Scutellum yellow on apical 1/2, with brownish gray pollen. Legs yellow, mid and hind femora and tibiae black except yellow at tip, all tarsomeres 3-5 pale brown. Fore femur with 3 strong *pv* and 5 *pd*, ctenidium with 9-10 (6 in few specimens) short bristles; fore tibia with 1 long preapical *ad* and 1 short *apv*. Mid femur with 4-5 *a* and 1 *apb*; mid tibia with 1 strong preapical *ad* and 2 strong *apv*. Hind femur with 1 preapical *ad*; hind tibia with 1 weak preapical *ad* and 1 short *apv*. Wing (Fig. 1) slightly yellow without spot, basal part of wing yellow; subcostal cell hyaline; costa with 2nd (between R_1 and R_{2+3}), 3rd (between R_{2+3} and R_{4+5}) and 4th (between R_{4+5} and M_1) sections in proportion of 1.2 0.4 0.3; *rm* at middle of discal cell; ultimate and penultimate sections of M_1 in proportion of 0.9: 1.0; ultimate section of CuA_1 about 1/4 of penultimate. Halter pale yellow.

Abdomen black, with sparse brownish gray pollen. Male genitalia (Figs 3-6): protandrium incorporate with epandrium; epandrium broad, nearly quadrate, with two long bristles and projecting on dorsal margin; surstylus bar-like with hairs, truncate apically in posterior view; hypandrium nearly V-shaped, gonopod incorporate with hypandrium; gonopod wide, nearly triangular and truncate apically; aedeagus broad, consisting of two Y-shaped dorsal sclerites and a pair of kidney-shaped ventral sclerites, membranous area ball-like between two pairs of sclerites; aedeagal apodeme slender in ventral view, longer than aedeagus.

Remarks. The new species is very similar to *Homoneura* (*Homoneura*) *repanda* Sasakawa from Japan by the following characters: mid and hind femora and tibiae black except yellow at tip, all tarsomeres 3-5 pale brown; surstylus with hairs and truncate apically. But it can be separated from the latter by the frons with a yellow to orange quadrate spot on anterior 1/2, except base of *or* rows brownish black; the hypandrium nearly V-shaped, the gonopod incorporate with the hypandrium, the



Figs 3-6. *Homoneura* (*Homoneura*) *trunciformis* sp. nov. (male). 3. Protandrium and epandrium, lateral view. 4. Protandrium, anterior view. 5. Aedeagal complex, ventral view. 6. Aedeagal complex, lateral view. Scale bar= 0.1 mm.

gonopod wide, nearly triangular and truncate apically. In *H. repanda*, the frons has a yellow triangular spot on the anterior margin; the hypandrium is U-shaped, the gonopod is separated with the hypandrium, the gonopod has three minute apical processes (Sasakawa, 1982).

Type material. Holotype ♂, Sanfenqu (800 m), Jianfengling (18°42' N, 108°47' E), Ledong, Hainan, 8 May 2008, coll. LIU Qi-Fei. Paratypes: 1 ♀, same as holotype; 2 ♂♂, 2 ♀♀, Mohao Village (860 m), Baisha (19°11' N, 109°25' E), Nankai, Hainan, 29-30 Apr. 2008, coll. LIU Qi-Fei; 1 ♂, 1 ♀, Mohao Village (860 m), Nankai, Baisha (19°11' N, 109°25' E), Hainan, 1 May 2008, coll. LIU Qi-Fei; 3 ♂♂, Jianling (400 m), Baisha (19°11' N, 109°25' E), Hainan, 13 May 2008, coll. LIU Qi-Fei; 3 ♂♂,

Hongxin Village (430 m), Yuanmen, Baisha (19°11' N, 109°25' E), Hainan, 11 Apr. 2008, coll. HUO Shan; 1 ♂, 1 ♀, Hongxin Village (2100 m), Baisha (19°11' N, 109°25' E), Hainan, 10 Sep. 2008, coll. HUO Shan; 1 ♂, Guanjingtai (600 m), Wuzhishan (18°51' N, 109°42' E), Wuzhishan, Hainan, 16 May 2007, coll. ZHANG Jue-Hua; 1 ♀, Guanjingtai (600 m), Wuzhishan (18°51' N, 109°42' E), Hainan, 16 May 2007, coll. ZHANG Kui-Yan.

Distribution. China (Hainan).

Etymology. Latin, *trunciformis*, meaning truncate apically, referring to the surstylus truncate apically in posterior view; a feminine adjective.

12 *Homoneura* (*Homoneura*) *picta* group

Diagnosis. Frons with two brown stripes. Wing brown with irregular hyaline spots. Abdomen yellow with brown spots or grayish pollen spots. Male genitalia: surstylus acute triangular or hook-like; hypandrium H shaped. Including: *H. (H.) pida* (de Meijere, 1904); *H. (H.) procerula* Gao & Yang, 2005; *H. (H.) trypetoptera* (Hendel, 1908).

13 *Homoneura (Homoneura) quiquenotata* group

Diagnosis. Wing with isolated round apical spots on R_{2+3} , R_{4+5} and M_1 , a narrow brown stripe over $r-m$ and $dm-cu$. Abdomen entirely brownish yellow or tergites 3-5 with black hind margin and a black median stripe. Male genitalia: protandrium circular; surstylus long, curved; hypandrium wide U-shaped or transverse band like, gonopod long triangular with hairs. Including: *H. (H.) brevicornis* (Kertész, 1915); *H. (H.) haeguana* Sasakawa & Kozanek, 1995; *H. (H.) longinotata* sp. nov.; *H. (H.) quiquenotata* (de Meijere, 1916).

Homoneura (Homoneura) longinotata sp. nov.
(Figs 2, 7-11)

Description. Male. Body 3.6-3.9 mm, wing 3.6-4.0 mm. Female. Body 3.4 mm, wing 3.4 mm. Head yellow. Frons about as long as wide and parallel-sided, with two tinged brown stripes extending to ocellar triangle; ocellar triangle brown; *oc* as long as anterior *or*, anterior *or* as long as 1/2 length of the posterior; gena about 1/4 height of eye. Antenna yellow, 1st flagellomere deeply black on apical 1/3, 1.9 times longer than high; arista long plumose, black except for brownish base, with longest hairs as long as height of 1st flagellomere. Proboscis yellow, with yellowish hairs and blackish hairs; palpus yellow with dark hairs.

Thorax brownish yellow. Mesoscutum with grayish white pollen, but no brownish median stripe; $0+3$ *dc* (anterior *dc* clearly behind transverse scutal suture), *ar* in 10 somewhat irregular rows; *prsc* shorter than 1st post sutural *dc*. Legs yellow, all tarsi brown apically. Fore femur with 3-4 strong *pv* and 5 *pd*, ctenidium with 11-12 short bristles; fore tibia with 1 long preapical *ad* and 1 short *apv*. Mid femur with 6-7 *a* and 1 *app*; mid tibia with 1 strong preapical *ad* and 2 strong *apv*. Hind femur with 1 preapical *ad* and a row of weak *av* (only 3 apical bristles distinct); hind tibia with 1 weak preapical *ad* and 1 short *apv*. Wing (Fig. 2) tinged yellowish, with several brown spots; apical spots on R_{2+3} , R_{4+5} and M_{1+2} small round or elliptic and entirely isolated, a small cloud spot on $r-m$, a stripe-like spot over $dm-cu$, subcostal cell hyaline; costa with 2nd (between R_1 and R_{2+3}), 3rd (between R_{2+3} and R_{4+5}) and 4th (between R_{4+5} and M_1) sections in proportion of 1.8: 0.6: 0.4; $r-m$ at middle of discal cell; ultimate and penultimate sections of M_1 in proportion of 1.1: 1.5; ultimate section of CuA_1

about 1/8 of penultimate. Halter yellowish.

Abdomen brownish yellow. Male genitalia (Figs 7-11): protandrium circular with a deep median dorsal incision in anterior view; epandrium slightly projected above surstylus; surstylus long and tenuous, lying before dorsoapical corner of epandrium; hypandrium wide U-shaped, gonopod long triangular with hairs; aedeagus narrow, with a pair of acute apical processes and notably long membranous area; aedeagal apodeme distinctly shorter than aedeagus.

Remarks. The new species is very similar to *Homoneura (Homoneura) quiquenotata* (de Meijere) from Indonesia (Java) in wing with five brown spots, surstylus long and tenuous, but it can be separated from the latter by the protandrium with a deep median dorsal incision in anterior view; the epandrium projected slightly above surstylus; the surstylus lying before dorsoapical corner of the epandrium; the aedeagus with a pair of acute apical processes and notably long membranous area. In *quiquenotata*, the protandrium has no deep median dorsal incision; the epandrium incurved slightly above the surstylus; the surstylus lies on the dorsoapical corner of the epandrium; the aedeagus is narrow without acute processes and long membranous area (Sasakawa, 1992).

Type material. Holotype ♂, Tianchi (800 m), Jianfengling (18°42' N, 108°47' E), Ledong, Hainan, 18 May 2006, coll. DONG Hui. Paratypes: 2 ♂♂, same as holotype; 1 ♀, Zhiwuyuan (800 m), Jianfengling (18°42' N, 108°47' E), Hainan, 24 Oct. 2007, coll. YANG Ding.

Distribution. China (Hainan).

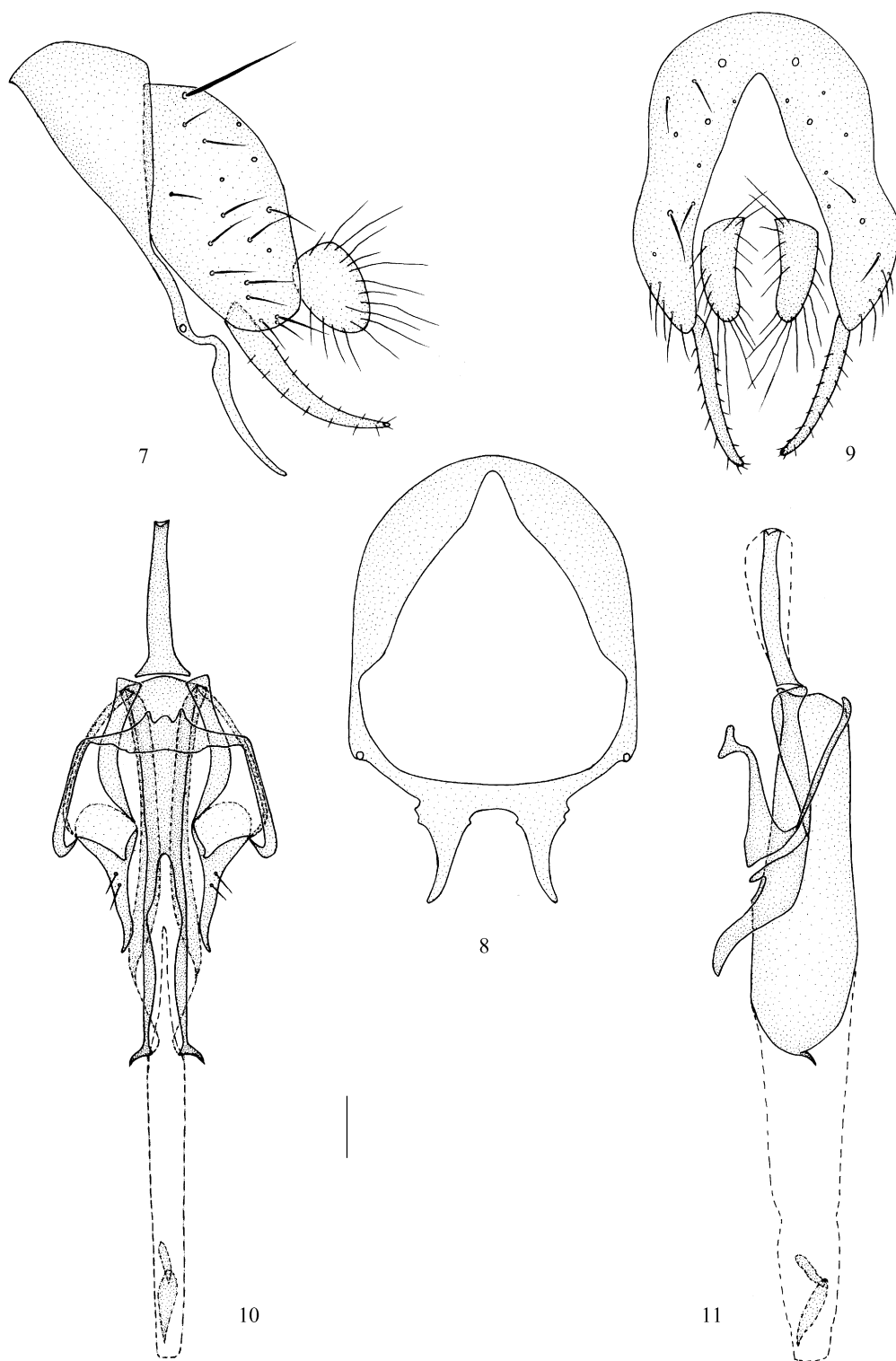
Etymology. Latin, *longi-*, prefix meaning long + *notata*, meaning notable, referring to the aedeagus with the long and notable membranous area; a feminine adjective.

14 *Homoneura (Homoneura) quinquevittata* group

Dignosis. Face as long as wide, with brown spots. Frons with two brown stripes. Palpus brown. Wing with deeply brown costal transverse band, extending to tip of R_{2+3} , a few small irregular spots on R_{4+5} and M_1 ; brown cloud on $r-m$ and $dm-cu$. Abdomen yellow, at least tergites 3-6 in male (3-7 in female) each with black subtriangular median spots and black hind margin. Male genitalia: surstylus somewhat hook-like; hypandrium H shaped. Including: *H. (H.)* sp.; *H. (H.) quinquevittata* (de Meijere, 1910).

15 *Homoneura (Homoneura) singularis* group

Dignosis. Frons yellow with 2 brown stripes. Palpus yellow to yellowish brown. Wing with 2 brown apical spots usually confluent on R_{4+5} and M_{1+2} , a brown apical spot on R_{2+3} confluent with subapical spot on R_{4+5} ; a brown spot on R_{4+5} between $r-m$ and $dm-cu$;



Figs 7-11. *Homoneura* (*Homoneura*) *longnotata* sp. nov. 7. Protandrium and epandrium, lateral view. 8. Protandrium, anterior view. 9. Epandrium, posterior view. 10. Aedeagal complex, ventral view. 11. Aedeagal complex, lateral view. Scale bar= 0.1 mm.

brown cloud on *r-m* and a brown stripe on *dn-cu*. Abdomen yellowish brown, male tergites 3-6 (female 3-7) each with a black median stripe. Male genitalia: surstylus claviform with hairs or teeth; hypandrium H shaped, gonopod coniform or lobate. Including: *H.*

(*H.*) *dicoma* Yang, Zhu & Hu, 2003; *H.* (*H.*) *singularis* Yang, Hu & Zhu, 2002; *H.* (*H.*) *tianlinensis* Gao & Yang, 2004; *H.* (*H.*) *vitigera* Sasakawa, 2001.

16 *Homoneura* (*Homoneura*) *substigmata* group

Diagnosis. Wing with distinct apical spot on R_{2+3} and R_{4+5} , a blurry brown spot on M_1 (in *stigmata*); a stripe-like spot on *r-m* and *dm-cu*; subcostal cell with a brown spot. Abdomen yellow without spot or with narrow black hind margin. Male genitalia: hypandrium U-shaped, surstylus small with an acute process. Including: *H. (H.) signata* Papp, 1984^{*}; *H. (H.) substigmata* Yang, Zhu & Hu, 1999.

17 *Homoneura (Homoneura) striatifrons* group

Diagnosis. Face yellow, with a slender brown transverse stripe near ventral margin and a brown basal spot on each side near parafacial. Frons with two brown stripes. Palpus brown. Wing with large brown clouds; a brown preapical spot on R_{2+3} confluent with a subapical spot on R_{4+5} ; two apical spots on R_{4+5} and M_1 confluent, extending to large brown cloud on *dm-cu*; a large brown spot in subcostal cell extending to large brown cloud on *r-m*; a brown triangular basal spot on R_{2+3} and R_{4+5} , a brown stripe on basal 1/2 of CuA_1 . Abdomen yellow, male tergites 2-6 (female 2-7) brown to black on hind margin. Male genitalia: surstylus with a coniform inner process; hypandrium coniform; gonopod slender, as long or longer than aedeagus. Including: *H. (H.) chishuiensis* Gao & Yang, 2006; *H. (H.) striatifrons* (de Meijere, 1924).

18 *Homoneura (Homoneura) tibetensis* group

Diagnosis. Frons wider than long. Palpus yellow. Wing with distinct apical spot on R_{2+3} and R_{4+5} , sometimes with a blurry spot on M_1 ; a median spot present beyond vertical level of *m-m* between apical spot and *r-m* on R_{4+5} ; brown cloud on *r-m* and *dm-cu*; abdomen brown without spot. Male genitalia: surstylus with a subapical dorsal inner process; hypandrium H-shaped without median process or Y-shaped, hypandrial apodeme indistinct or very short; gonopod without hairs; aedeagus blunt round apically, with acute processes. Including: *H. (H.) tibetensis* Gao & Yang, 2003; *H. (H.) varinensis* (Kertész, 1915).

19 *Homoneura (Homoneura) trispina* group

Diagnosis. Frons blackish brown with yellow anterior margin. Palpus brown. Wing without spot, basal part of wing blackish brown. Halter yellow except black knob. Abdomen blackish brown. Male genitalia: epandrium broad, nearly quadrate in lateral view; surstylus consisting of anterior and posterior processes; hypandrium Y-shaped, gonopod slender subuliform. Including: *H. (H.)* sp.; *H. (H.) dentifera* Malloch, 1929^{*}; *H. (H.) folifera* Malloch, 1927^{*}; *H. (H.) maquilangensis* Malloch, 1929^{*}; *H. (H.) opposita* Malloch, 1927^{*}; *H. (H.) trispina* Malloch, 1927.

20 *Homoneura (Homoneura) unguiculata* group

Diagnosis. Wing clear without spots. Abdomen yellow or brownish yellow without spots. Male genitalia: surstylus claw-like or slightly hook-like or furcated, aedeagus slightly broad in lateral view. Including: *H. (H.) diversa* (Kertész, 1913); *H. (H.) pallidula* Malloch, 1927; *H. (H.) unguiculata* (Kertész, 1913).

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Appendix. The unplaced species list of the subgenus *Homoneura* from China.

1. *Homoneura (Homoneura) braviseta* (Kertész, 1913). Oriental, China (Taiwan).
2. *Homoneura (Homoneura) caloptera* (Kertész, 1915). Oriental, China (Taiwan).
3. *Homoneura (Homoneura) conawa* Sasakawa, 2002. Oriental,

- China (Taiwan).
4. *Homoneura* (*Homoneura*) *omuta* Sasakawa, 2001. Oriental, China (Guangxi), Viet Nam.
 5. *Homoneura* (*Homoneura*) *aurispina* Gao & Yang, 2003. Oriental, China (Tibet).
 6. *Homoneura* (*Homoneura*) *discoidealis* (Kertész, 1915) (♀). Oriental, China (Taiwan).
 7. *Homoneura* (*Homoneura*) *extensa* Yang, Hu & Zhu, 2001 (♀). Oriental, China (Zhejiang).
 8. *Homoneura* (*Homoneura*) *flavomarginata* (Kertész, 1915) (♀). Oriental, China (Taiwan).
 9. *Homoneura* (*Homoneura*) *hainanensis* Yang, Hu & Zhu, 2002 (♀). Oriental, China (Hainan).
 10. *Homoneura* (*Homoneura*) *heterostida* (Kertész, 1913). Oriental, China (Taiwan).
 11. *Homoneura* (*Homoneura*) *koltshoffi* Hendel, 1938. Palearctic, China (Tianjin), North Korea, Russia (Primorskiy Krai); Oriental, China (Jiangsu).
 12. *Homoneura* (*Homoneura*) *lata* Yang, Hu & Zhu, 2001. Oriental, China (Zhejiang).
 13. *Homoneura* (*Homoneura*) *latifrons* Malloch, 1927. Palearctic, Japan; Oriental, China (Taiwan).
 14. *Homoneura* (*Homoneura*) *levia* (Wiedemann, 1830). Oriental, China (Guangdong).
 15. *Homoneura* (*Homoneura*) *longiphumaria* Yang, Hu & Zhu, 2002 (♀). Oriental, China (Hainan).
 16. *Homoneura* (*Homoneura*) *mayrhoferi* Czerny, 1932. Palearctic, Russia (Far East), Mongolia, North Korea, Japan, China (Northeast Region).
 17. *Homoneura* (*Homoneura*) *nigronotata* (Kertész, 1915). Oriental, China (Taiwan).
 18. *Homoneura* (*Homoneura*) *obtusa* Yang, Hu & Zhu, 2002. Oriental, China (Hainan).
 19. *Homoneura* (*Homoneura*) *pallida* Yang, Hu & Zhu, 2002. Oriental, China (Hainan).
 20. *Homoneura* (*Homoneura*) *pidipennis* Czerny, 1932 (♀). Palearctic, China (Northeast region), Russia (Far East).
 21. *Homoneura* (*Homoneura*) *polycantha* Yang, Zhu & Hu, 1999. Palearctic, China (Henan).
 22. *Homoneura* (*Homoneura*) *sauteri* Malloch, 1927. Oriental, China (Hainan, Taiwan), Laos, Malaysia (Borneo), Sri Lanka, Viet Nam.
 23. *Homoneura* (*Homoneura*) *septentrionalis* (Loew, 1847). Palearctic, China (Northeast region), Japan, Mongolia, Russia.
 24. *Homoneura* (*Homoneura*) *signata* Enderlein, 1937. Palearctic, China (Heilongjiang); Oriental: Malaysia (Borneo), Cambodia, India (Assam), Malaysia, Philippines (Mindanao), Indonesia (Sumatra), Thailand, Viet Nam.
 25. *Homoneura* (*Homoneura*) *simplicissima* (de Meijere, 1910). Oriental, China (Taiwan), Indonesia (Java, Krakatau, Sulawesi, Sumatra), Malaysia (Borneo, Maluku), Philippines (Luzon).
 26. *Homoneura* (*Homoneura*) *subvittata* Malloch, 1927. Oriental, China (Taiwan), Malaysia (Borneo), Thailand.
 27. *Homoneura* (*Homoneura*) *suturalis* Yang, Hu & Zhu, 2003. Oriental, China (Fujian).
 28. *Homoneura* (*Homoneura*) *variipennis* Czerny, 1933. Palearctic, China (Northeast Region), Russia.

中国同脉縗蝇亚属种团划分及二新种记述 (双翅目, 縗蝇科)

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摘 要 记述了中国同脉縗蝇亚属 20 个种团, 其中 17 个种团, 即异突同脉縗蝇种团 *H.* (*H.*) *abnormis* group, 双带同脉縗蝇种团 *H.* (*H.*) *bistriata* group, 短突同脉縗蝇种团 *H.* (*H.*) *brevis* group, 台湾同脉縗蝇种团 *H.* (*H.*) *formosae* group, 河南同脉縗蝇种团 *H.* (*H.*) *henanensis* group, 叉突同脉縗蝇种团 *H.* (*H.*) *latiosta* group, 李氏同脉縗蝇种团 *H.* (*H.*) *li* group, 背斑同脉縗蝇种团 *H.* (*H.*) *notostigma* group, 美额同脉縗蝇种团 *H.* (*H.*) *ornatifrons* group, 多斑同脉縗蝇种团 *H.* (*H.*) *picta* group, 五斑同脉縗蝇种团 *H.* (*H.*) *quiquenotata* group, 单突同脉縗蝇种团 *H.* (*H.*) *singularis* group, 纹额同脉縗蝇种团 *H.* (*H.*) *striatifrons* group, 斑腿同脉縗蝇种团 *H.* (*H.*) *substigmata* group, 西藏同脉縗蝇种团 *H.* (*H.*) *tibetensis* group, 三尖同脉縗蝇种团 *H.* (*H.*) *tripina* group, 爪突同脉縗蝇种团 *H.* (*H.*) *unguiculata* group 为首次提出, 并描述了 2 新种, 平截同脉縗蝇 *H.* (*H.*) *trunciformis* sp. nov. 和长膜同脉縗蝇 *H.* (*H.*) *longinotata* sp. nov., 提供了该亚属分种团检索表。所有观察标本均保存于中国农业大学昆虫标本馆。

平截同脉縗蝇, 新种 *Homoneura* (*Homoneura*) *trunciformis* sp. nov. (图 1, 3~6)

新种与日本的后弯同脉縗蝇 *Homoneura* (*Homoneura*) *repanda* Sasakawa & Ikeuchi, 1982 相近, 但新种额区前半部有 1 个黄色方斑, 下生殖板 V 型, 生殖肢宽、近三角形、端部平截, 与下生殖板合并。

正模 ♂, 海南乐东县尖峰岭三分区, 800 m, 2008 05 08, 刘启飞采。副模: 1 ♀, 采集信息同正模; 2 ♂♂, 2 ♀♀, 海南白沙县南开乡莫好村, 860 m, 2008 04 29~30, 刘启飞采; 1 ♂, 1 ♀, 海南白沙县南开乡莫好村, 860 m, 2008 05 01, 刘启飞采; 3 ♂♂, 海南白沙县尖岭, 400 m, 2008-05-13, 刘启飞采; 3 ♂♂, 海南白沙县元门乡红新村, 2 100 m, 2008 04 11, 霍姗采; 1 ♂, 1 ♀, 海南白沙县元门乡红新村, 2 100 m, 2008-09-10, 霍姗采; 1 ♂, 海南五指山观山台, 600 m, 2007 05 16, 张俊华采; 1 ♀, 海南五指山观山台, 600 m, 2007 05 16, 张魁艳采。

词源: 种名意指背侧末端截型。

* 通讯作者。

长膜同脉缟蝇, 新种 *Homoneura* (*Homoneura*) *longinotata* **sp. nov.** (图 2, 7~ 11)

新种与印度尼西亚的 *Homoneura* (*Homoneura*) *quiquenotata* (de Meijere, 1915) 相近, 但新种生殖前节背部中央有 1 个深凹; 第 9 背板背缘在背侧突上方微凸, 背侧突出自第 9 背板

关键词 双翅目, 缟蝇科, 同脉缟蝇亚属, 种团, 新种, 中国.
中图分类号 Q969. 459. 2

端部之前; 阳茎端部有 1 对尖突和极长的膜质部分。

正模 ♂, 海南乐东县尖峰岭天池, 800 m, 2006-05-18, 董慧采。副模: 2 ♂♂, 采集信息同正模; 1 ♀, 海南乐东县尖峰岭植物园, 800 m, 2007-10-24, 杨定采。

词源: 种名意指阳茎有长的膜质区。